2nd Annual Washington Stroke Symposium:

Practical Applications for Building Stroke Systems in Our Communities

June 15, 2010

The Story Begins…

Bob Appel
Chief Executive Officer
Mason General Hospital

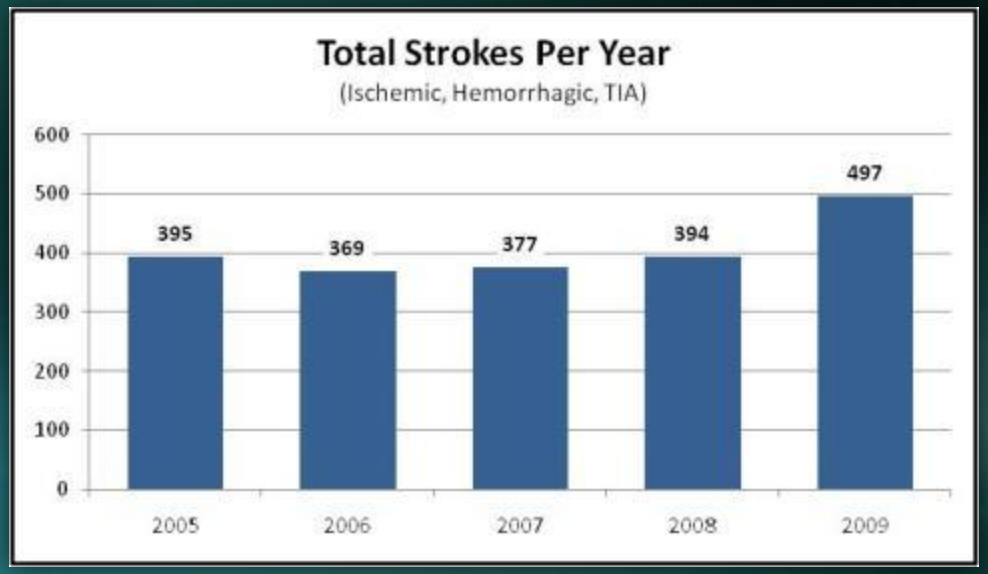
Providence St. Peter Hospital

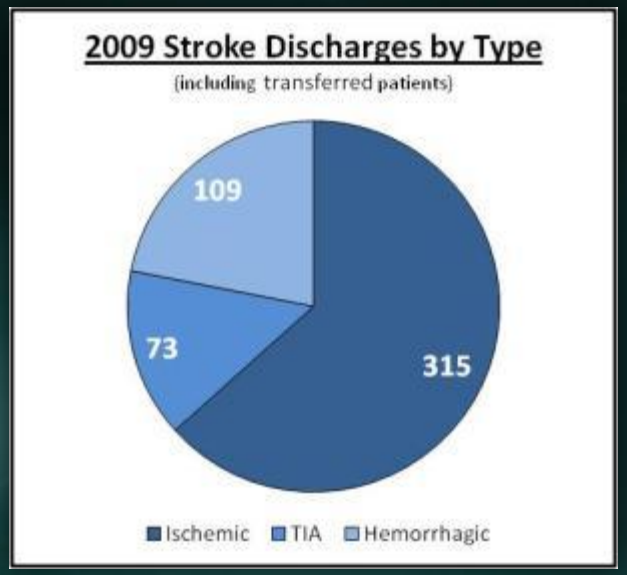
Stroke Discharges: (2009)	497
• Ischemic	315
• Hemorrhagic	109
• TIA	73
IV / IA tPA Patients:	75
Acute Stroke Screens:	364
TIA Clinic Patient Visits:	139
Inpatient ALOS (days):	3.26

Pat Putnam
Administrative Director, Neurosciences
Providence - Southwest Washington

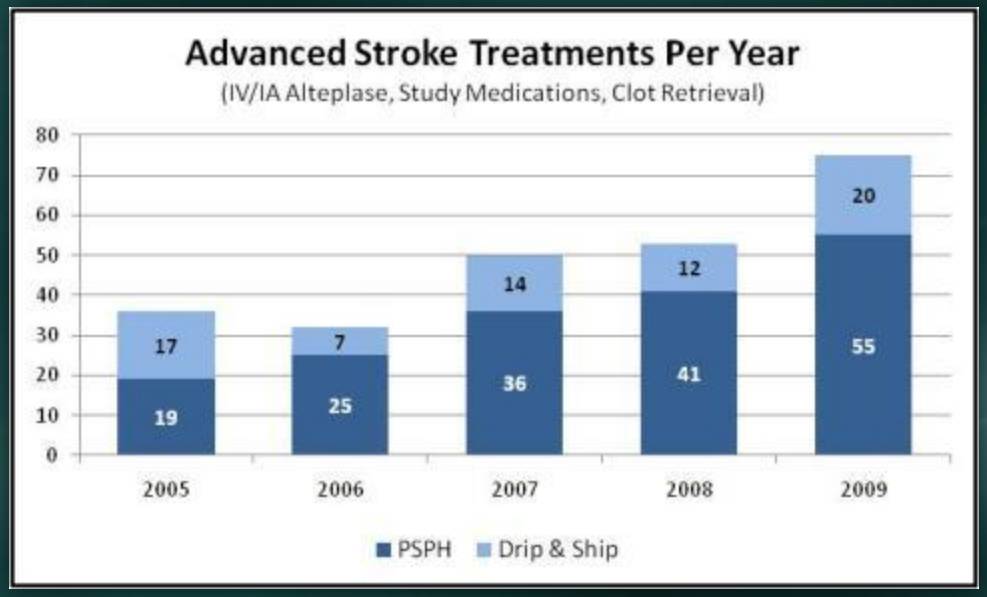
James McDowell, MD
Vascular Neurologist
Medical Director, Stroke Program

Aggressive Stroke Treatment



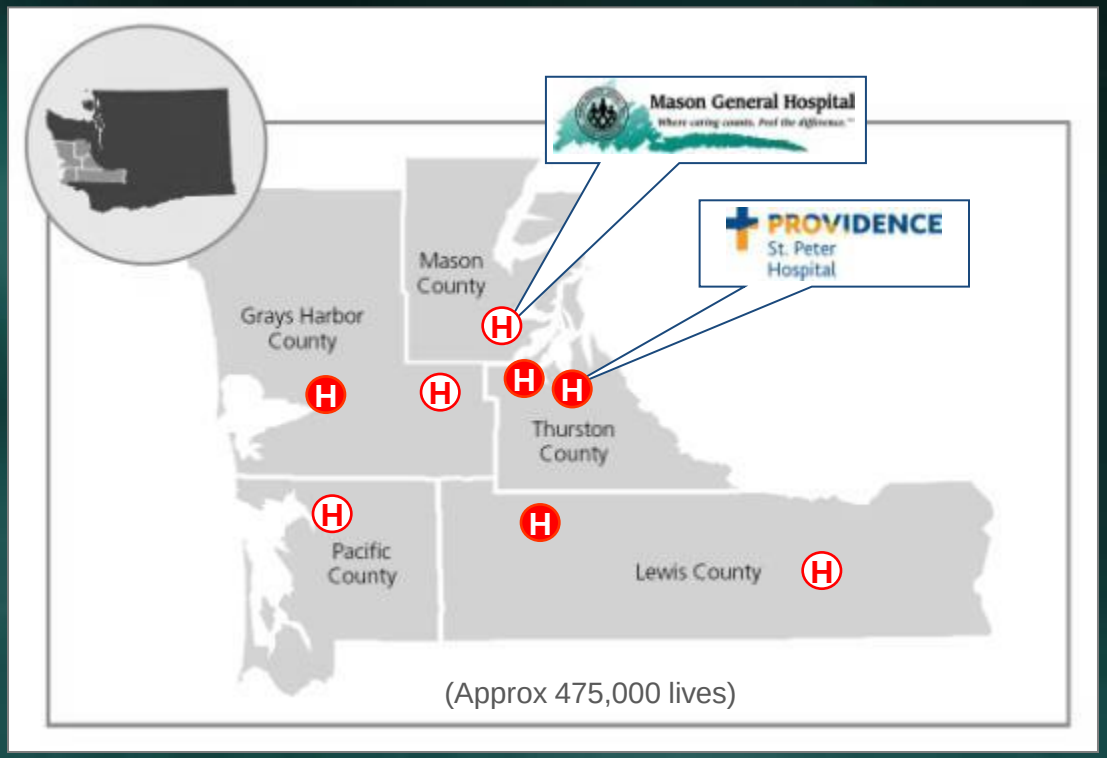


In 2009, 23.8% of ischemic stroke patients discharged from Providence St. Peter Hospital received advanced treatment, compared to a 3.7% average rate across Washington State.



Stroke Network Overview

- 8 Hospitals
  - 4 critical access
  - 4 community
  - 1 health network



- Approximately 830 strokes & TIA's discharged from region hospitals in 2009.

- Neurology & neurosurgery support provided via telephone consultation and remote image viewing.

Mason General Project Overview

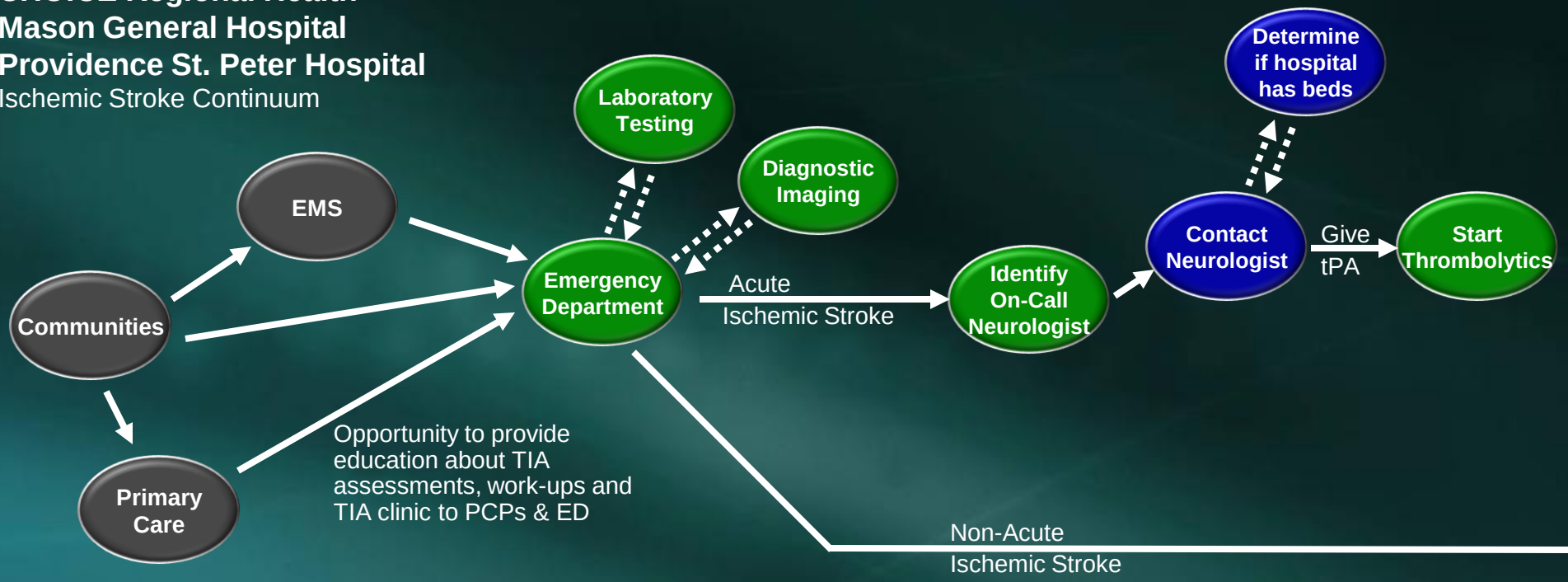
Goal:

Provide the same standard of care for stroke patients presenting at Mason General Hospital as those presenting at Providence St. Peter Hospital.

- Complete evaluation & treatment decision within 45 minutes
- Treatment with tPA within 60 minutes if appropriate

CHOICE Regional Health
Mason General Hospital
Providence St. Peter Hospital

Ischemic Stroke Continuum



EMERGENCY SERVICES

(+) Pretty good at screening for stroke

(+) Consistent protocols between EMS companies

(+) Good utilization of NIH assessment

(-) Communication to ED can be spotty due to inconsistent cell service.

COMMUNITIES

(-) Need to increase stroke awareness and prevention

PRIMARY CARE

(-) Need to educate about benefits of treating stroke / TIA and treatment protocols

MGH EMERGENCY DEPT

(+) Patients are fast-tracked when within treatment timeframe.

(-) No standard protocols for stroke management.

(?) Unable to provide much treatment for Wake-Up Strokes

(-) Could use a standardized approach to TIA management

(-) Unaware of availability of TIA Clinic

LABORATORY TESTING

(+) Turnaround not identified as an issue.

DIAGNOSTIC IMAGING

(+) 24 hr staffing of 16-slice CT scanner

(-) Timely after-hours reads are inconsistent

(+) Remote PACS viewing at PSPH file room.

(-) No remote access for PSPH neuro docs due to credentialing question

(?) Find out who provides reading service after-hours

NEUROLOGY CONTACT

(-) Must contact PSPH first to find out who is on-call… no single contact number

(-) Requires multiple phone calls {2-3} to contact neurologist and identify bed availability. Need transfer center.

(-) Some inconsistency among neurologists in assessments and decision making.

START THROMBOLITICS

(-) Standard diagnostic protocol would help

(?) Uncertain about efficacy of thrombolytics

LEGEND

- Outside MGH / PSPH
- Mason General Hospital Area
- St. Peter Hospital Area

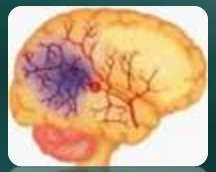
Create Detailed Project Plan

	Lead	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
1. Identify Best Practice Standards & Treatment Protocols													
• Complete value mapping that includes current standard practice at MGH/PSPH and identify areas of early wins	Pat Putnam, Dr. Gushee	X											
• Identify and agree upon the following "Best Practice" models: ○ Transfer processes that includes comm plan after patient is shipped ○ Clinical standards for tPA administration ○ Rehab plan that includes outpatient and return to home hospital	Annie Stanford, Dr. McDowell		X										
2. Implementation Steps for Pilot													
Providence St. Peter Hospital:													
• PSPH work with MGH and providers to credential providers	Pat Putnam							3/31					
• PSPH to put together packet of materials based on "Best Practices" that includes above	Annie Sanford			X									
• PSPH will develop a list of transfer items to be sent with patient	Annie Sanford				X								
• PSPH in collaboration with MGH develop a transfer feedback sheet	Pat Putnam							3/31					
Mason General Hospital:													
• MGH maps internal processes	Dr. Gushee, Dona Kravis							3/15					
• MGH develop plan to involve EMS that includes developing process/protocols for EMS ○ Send materials to EMS for review ○ EMS review and provide feedback	Dr. Gushee, Dr. Hoffman			X				3/15					
• MGH will involve radiology/lab and develop internal process ○ Sent packet of materials for review ○ Review and feedback	Dr. Gushee			X				3/15					
• MGH will develop and implement an internal education plan focused on ED ○ Development of Education packet ○ Educate staff ○ Staff certification of NIH	Dr. Gushee/Dona Kravis				1/31	2/28	3/15						
• Review education and forms to identify necessary updates.	Dr. Gushee, Dona Kravis				1/10								
3. Pilot													

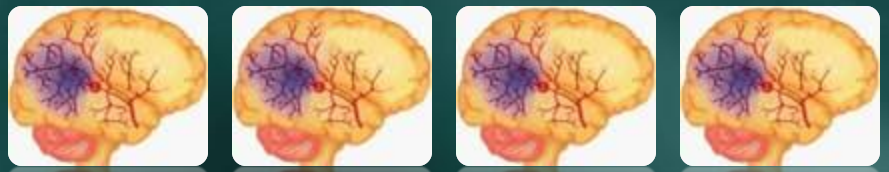
Pilot The Improvements

Mason General Hospital
Pre & Post Implementation tPA Administration

6 months prior to
Brain Attack pilot



6 months during
Brain Attack pilot



Evaluate and Improve

CHOICE Regional Health Network
"Brain Attack" Meeting
May 17, 2010 1:30pm – 3:00pm
Skokomish Room – Bottom level

Attending:
Mason General Hospital: Bob Appel, Dr. Dean Gushee, Dona Kravis, Eileen Branscome, Dr. Joe Hoffman
Providence St. Peter Hospital: Jeff Robert, Dr. James McDowell, Pat Putnam, Doug Upson, Jackie Brown
CHOICE: Kristen West, Holly Greenwood

Time	Topic	Led by	Action	Attachments
1:30 pm	1) Welcome & introductions • Agenda Review	Holly	Review	1) Agenda
1:40 pm	2) Update on Brain Attack Pilot • Overview/Case Summary • Review EMS Inter-facility Stoke Transfer Protocol	Holly Dona Joe/Dean	Update	2) Case Summary 3) Stroke EMS Protocol
2:00 pm	• Regional Expansion Update 3) Infrastructure Support • Transfer Center – How is it working? ○ Feedback from physicians ○ Opportunities	Holly Dean Pat / Dean Jackie	Discussion Identify next steps	
2:20 pm	4) Meeting Review/Next Steps • Is the content still relevant? • Additional data needed? • Define meeting dates ○ Core Groups- monthly/every other month ○ Full Group - Quarterly September	Holly	Agree to Next Steps	
2:30	ADJOURN			

Workgroup and Oversight Group Meetings

Feedback Mechanisms

Detailed Case Data

Summarized Outcomes Data

PRIMARY STROKE CENTER

413 Lilly Road NE, MS 04H27
Olympia, Washington
98506-5166

PROVIDENCE St. Peter Hospital

Transfer Patient Treatment Summary

Patient Initials: EXAMPLE
Transfer Date: 1/21/2015
Alteplase Administered? ☒ Yes ☐ No If no, why: ____
Pre-Transport NIH Score: 18
Transferring Hospital: Mason General Hospital
Transferring Physician: Dean Gushee, MD

NIH Score Upon Arrival: 14
Accepting Physician: James McDowell, MD
Pager Number: 360-555-1212
Alteplase Administered? ☐ Yes ☒ No If no, why: already administered
Other Stroke Treatment? ☐ Yes ☒ No If yes, what: ____
Days in CCU: 0
Days in Stroke Unit: 3
Days in Other Unit: 0

☒ ST Assessment
☒ Dysphagia
☒ Antithrombotics
☒ Anticoagulation
☒ Statins Considered
☒ Stroke Education
☒ Rehabilitation

Stroke symptoms include left hemiplegia, neglect, hemianopia, and facial weakness. CT indicated large ischemic infarct in right cerebral hemisphere. Cause of stroke determined to be chronic atrial fibrillation (untherapeutic). Family was included in education and follow-up appointment scheduled with primary care provider regarding elevated lipid levels.

Date of Discharge: 1/24/2015
Pre-Stroke Modified Rankin Score: 1
Discharge NIH Score: 5
Discharge Modified Rankin Score: 1

Discharged To:
☒ Home: Discharged home to family with primary care follow-up.
☐ Home Health: ____
☐ Rehabilitation Center: ____
☐ Skilled Nursing Facility: ____

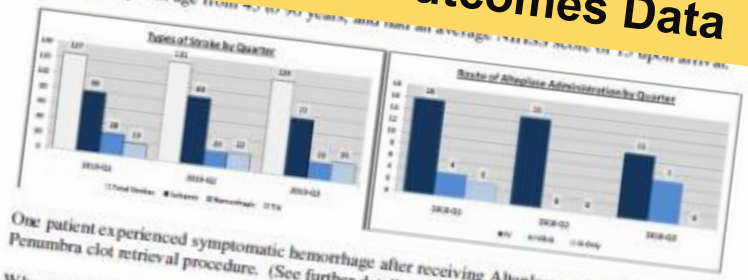
90-Day Outcomes Report
Stroke Patients Treated With Alteplase
(Example Document)

PROVIDENCE St. Peter Hospital

Background & Purpose: Patients presenting at Providence St. Peter Hospital (PSPH) with acute onset ischemic stroke may be treated with intravenous (IV) and/or intra-arterial (IA) Alteplase. The goal of this report is to provide feedback to involved practitioners regarding the outcomes of Alteplase treated patients and to promote continued improvement of patient care.

Methods: Providence St. Peter Hospital utilizes a registry to track detailed stroke patient data. Patients treated with Alteplase are contacted via telephone 90 days post-discharge to determine the patient's level of independence. Independence is measured utilizing the standard Barthel Index, which measures a person's activities of daily living including eating, dressing, bathing, grooming, toileting and mobility status. A Barthel Index score of 100 indicates all activities are performed independently. Patients are grouped based upon discharge date.

Summary of Findings: During 3rd Quarter 2010, a total of 124 stroke patients were discharged



One patient experienced symptomatic hemorrhage after receiving Alteplase and undergoing a Penumbra clot retrieval procedure. (See further details on back page.)

When surveyed 90 days post-discharge, 10 patients (55.6%) were categorized as independent or functioning nearly independent, 4 patients (22.2%) required assistance to perform daily activities, and 1 patient (5.6%) required constant care. Three patients (16.7%) had expired.

(see reverse for more information)

The Mason General Experience

Dean Gushee, MD, MS FACEP
Medical Director
Mason General Hospital

Mason General Hospital
Where caring counts. Feel the difference.™

CHOICE Regional Health Network

PROVIDENCE St. Peter Hospital

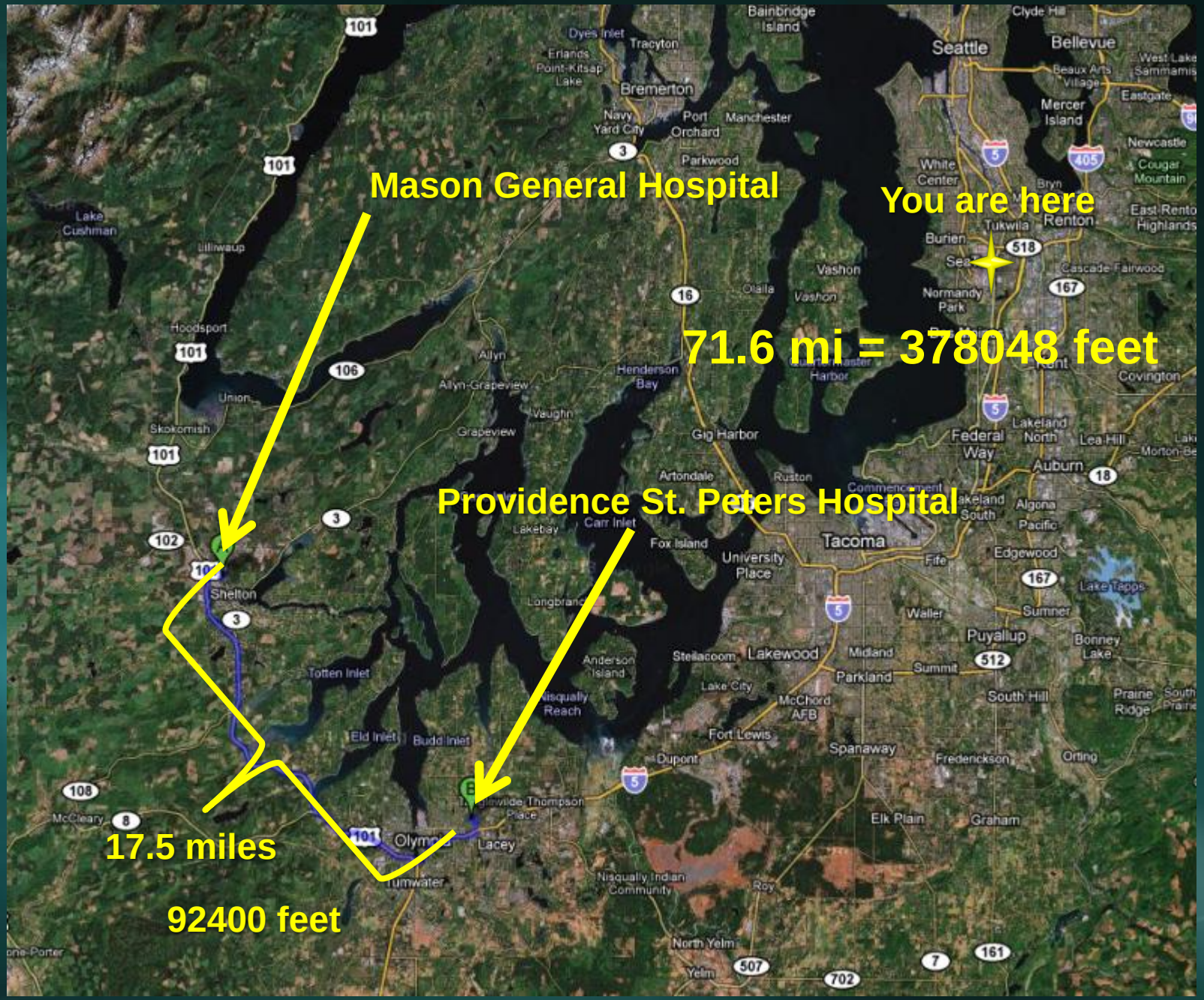
The Mason General Hospital Team

- Bob Appel
  Chief Executive Officer
- Dean Gushee, MD, MS FACEP
  Medical Director
- Joe Hoffman, MD
  EMS Medical Director
- Dona Kravis, RN
  ED Nursing Director
- Eileen Branscome, RN
  Chief Operations Officer
- Holly Greenwood
  CHOICE Regional Health Network

Mason General Hospital

- Critical Access Hospital
- Approximately 120 credentialed physicians
- 9 Bed ED seeing ~22,000 visits/year
- 8 Board Certified and residency-trained Emergency Physicians
- Level IV Trauma Designation

Mason General Hospital


Mason General Hospital
You are here
71.6 mi = 378048 feet
Providence St. Peters Hospital
17.5 miles
92400 feet

Before…

- Stroke patients not prioritized for CT
- No CT reading prioritization
- No specific communication plan
- No transfer protocol
- Variable ambulance availability for transfer
- No specific prehospital protocol
- Treatment based on physician preference, experience and bias

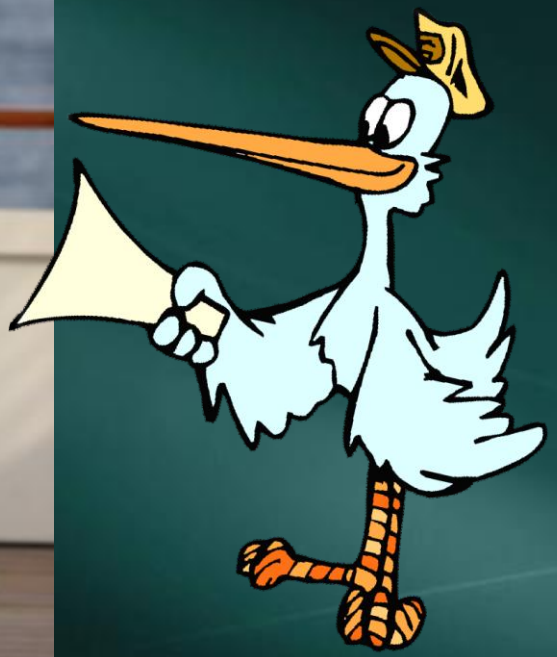

MASON
GENERAL
HOSPITAL
VISITORS ENTRANCE
DOCTORS CARRY
LESS THAN
20 DOLLARS
EMERGENCY
MAIN ENTRANCE

The Problem. . .

- Docs trained in the ‘dark art’ of individualism
- Practice influenced by anecdotal experience
- “I know best for my patients”
- Small patient numbers = can’t see outcome differences
- Differences of opinion prevent process improvement

The Problem…ME!

What's that?



The Solution

- Agree to put aside differences in favor of reducing variability
- Create a common vision and goal
- Trust our partners
- Adhering to process = the new ‘outcome’
- Leverage the best capabilities of the extended medical community
- Use this experience for future initiatives

Vision

- Provide evidence based, coordinated care, for stroke and TIA patients and families to ensure optimal outcomes in collaboration with established regional partners

Goal

- Complete evaluation and treatment decision for at-risk stroke/TIA patients within 60 minutes from door to disposition

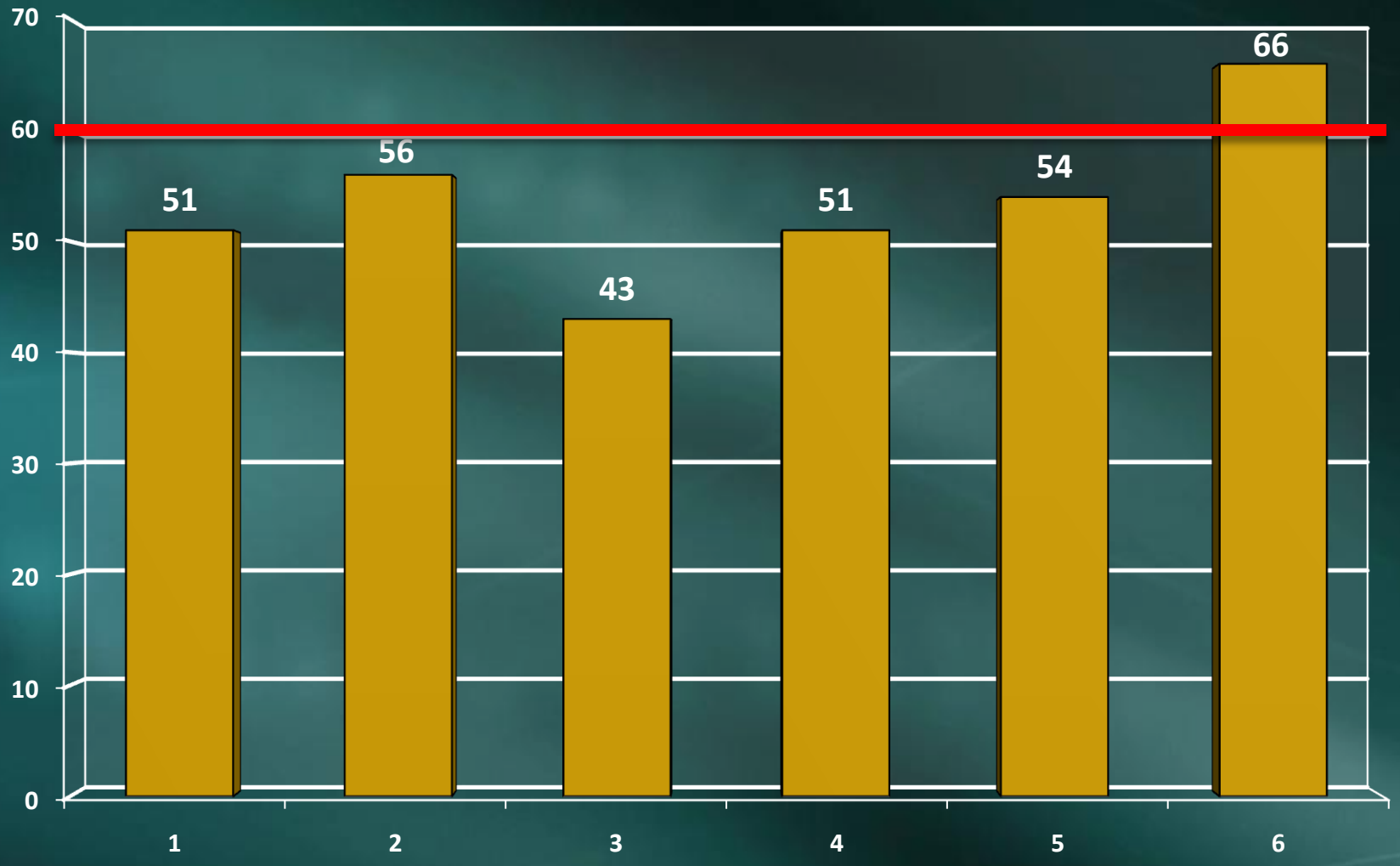
Necessary Elements

- Administrative Commitment
- Skilled Facilitator
- Dedicated Team
- Physician Buy-in
- Agreement On Treatment Standards Between Hospitals
- EMS Integration

Our Experience…

- 2/3 of ED nurses have completed NIHSS training
- Created basic ‘stroke kit’ –data forms, Alteplase dosing calculator, meds, syringes tubing, needles, etc.
- Standardized blood pressure management tool
- Created ‘stroke team’ alert system
- SPH generously shared tools, best practices

Our Data: Arrival to TPA Goal 60 minutes



Average = 53.5 Minutes

Lessons Learned

- Standardized practices improve efficiency
- Use of a ‘transfer center’ can improve communication
- Time goals are evidence based
- Data collection allows evidence based protocol modifications
- It is possible to provide the best care to patients no matter where they live

Role of Emergency Medical Services

Joe Hoffman, MD
EMS Medical Director
Mason County EMS and MGH Emergency Room Physician

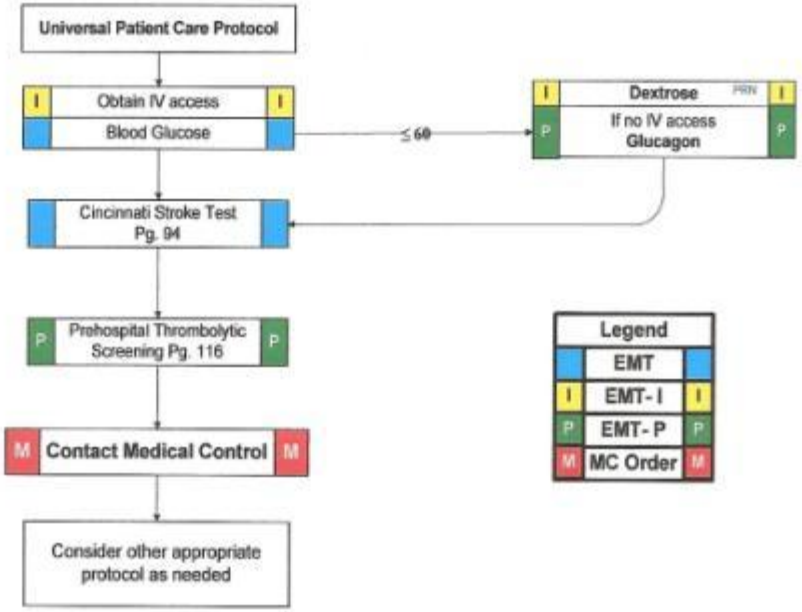
Mason County EMS

- 15 agencies
- 3 ALS agencies
- Approximately 225 providers
- 20% are paid employees
- Just over 10,000 aid calls per year
- Single 911 dispatch center

Dispatch

- Use a Criteria Based Algorithms
- Identify patients in 4 ½ hour window
- Dispatch the closest units
- Advisory to units of potential stroke candidate

History:	Signs/Symptoms:	Differential:
• Previous CVA, TIA's • Previous cardiac / vascular surgery • Associated diseases: diabetes, hypertension, CAD • Atrial fibrillation • Medications (blood thinners) • History of trauma	• Altered mental status • Weakness / Paralysis • Blindness or other sensory loss • Aphasia / Dysarthria • Syncope • Vertigo / Dizziness • Vomiting • Headache • Seizures • Respiratory pattern change • Hypertension / hypotension	• See Altered Mental Status • TIA (Transient ischemic attack) • Seizure • Hypoglycemia • Thrombotic stroke • Embolic stroke • Hemorrhagic stroke • Tumor • Trauma

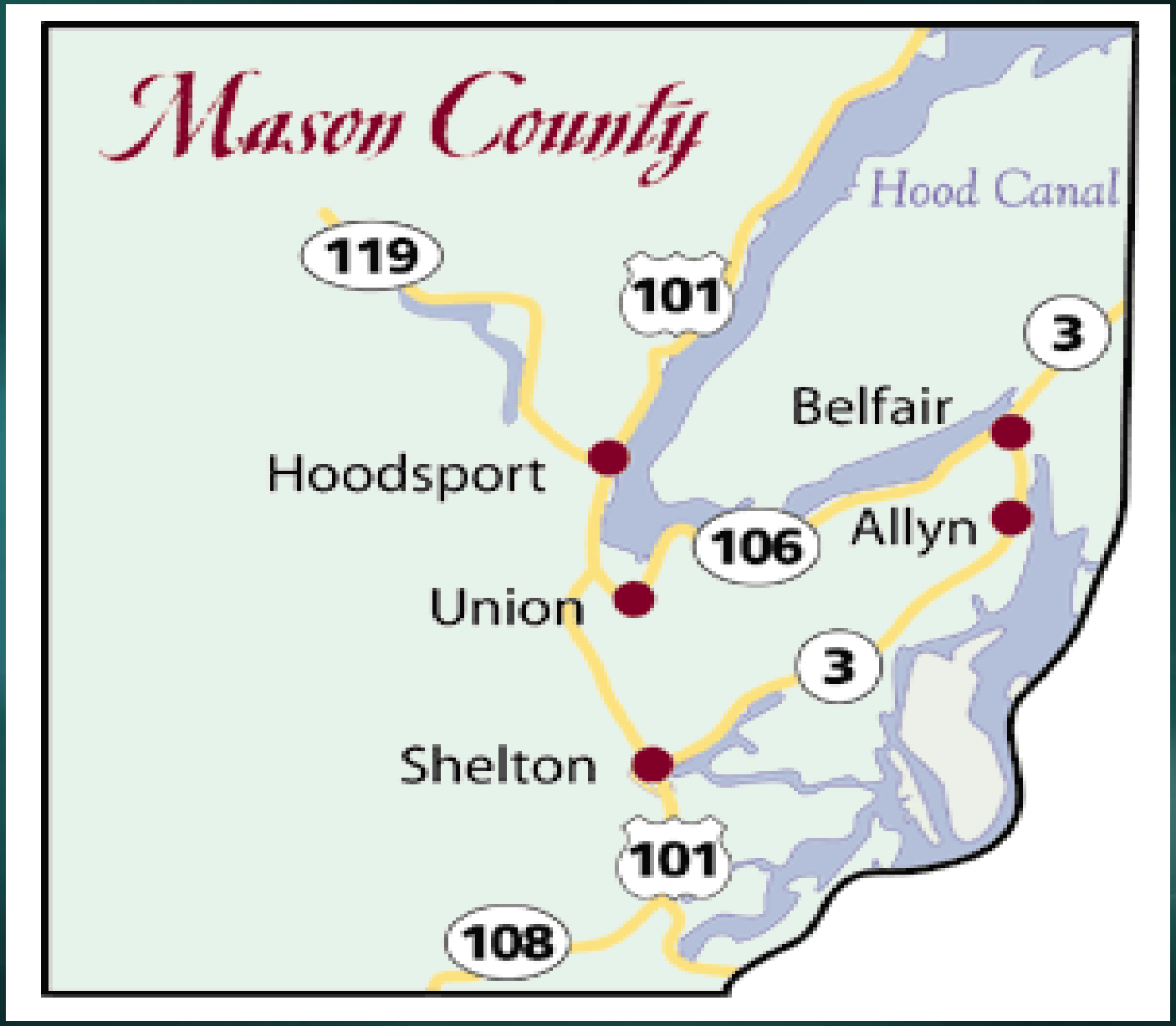


Notes:	Meds:
• Onset of symptoms is defined as the last witnessed time the patient was symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was symptom free) • The differential listed on the Altered Mental Status Protocol should also be considered. • Be alert for airway problems (swallowing difficulty, vomiting). • Hypoglycemia can present as a localized neurologic deficit, especially in the elderly. Hyperglycemia can be very dangerous in ischemia	**Dextrose** 12.5-25g IV PRN **Glucagon** 1 mg IM

Triage Decision

- Less than 4 ½ hours from onset of symptoms
- Deficit on initial stroke exam
- “Call the ball” and declare Code Stroke
- Choose a destination with shortest time to 1st CT

Destination Decisions



Destination Decisions

- Mason General – Hwy 101 to just south of Shelton and southern Hwy 3 corridor
- St. Peter's – South of Shelton
- Harrison Medical Center – Hwy 3 above Allyn

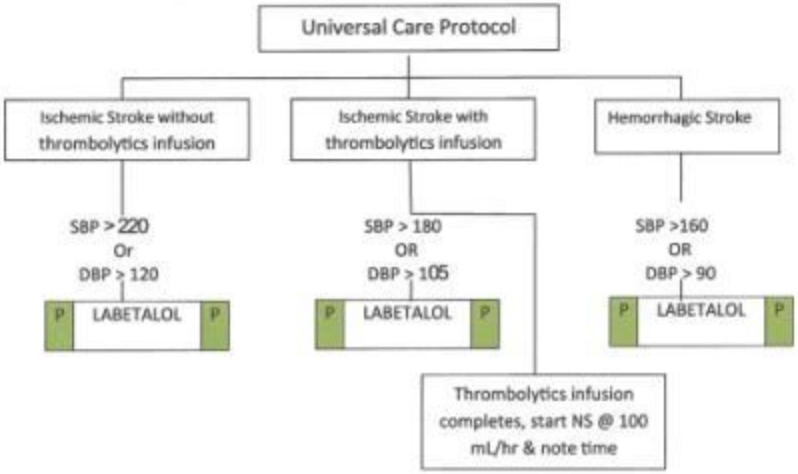
Arrival

- Direct to CT scanner while giving report
- Unit back into service but waiting at hospital for potential quick turn around
- Complete patient care report
- If unit is unable to wait, call 911 at time of transfer

Interfacility Stroke Transfer Protocol

- HOB 15-30 Degrees
- Every 15 minutes VS with Neurologic Assessment

- If receiving thrombolytics confirm start time and rate
- If infusing completed during transport, note time in narrative.



Notes:	Meds:
Hypotension: STOP thrombolytics (if infusing), lay patient flat and give IVF Challenge	Thrombolytics: Dose & rate determined by hospital.
Neurological Deterioration: STOP thrombolytic infusion (if infusing), ABC's and assess as new patient with AMS	Labetalol: 10mg IV over 1-2 min may repeat once in 5 minutes.
Patient Care Report: A complete report will be left with receiving hospital	

What's Next?

Pat Putnam
Administrative Director, Neurosciences
Providence - Southwest Washington

Next Steps

- Continue Rollout To Regional Hospitals
  - Mason General has become a mentor
- With Critical Mass, Create a Regional Stroke Network Group
  - Learn from / teach each other
  - Share comparative data & outcomes
  - Help set improvement priorities
- Collaborate on Public Education & Awareness

Strategic Next Steps

- Increase Overall Capacity To Care For Stroke Patients
  - Create a “Stroke Academy” to improve stroke treatment, and expand stroke treatment capacity within Southwest Washington.
- Provide Increased Access To Neuro-Related Specialists
  - Implement telehealth network to provide for more timely and comprehensive access to neuro-related specialists.


THANK YOU

Questions

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- Dr. Joe Hoffman: hoffmanjoe@aol.com
- Pat Putnam: Patrick.Putnam@providence.org